REMARKS

Claims 1-30 are pending in this application. By this Amendment, claims 1, 6-8 and 15 are amended for clarity.

Entry of this Amendment is proper under 37 C.F.R. §1.116 because the amendments: a) place the application in condition for allowance for the reasons set forth below; b) do not raise any new reasons that require further search and/or consideration; and c) place the application in better form for an appeal, should an appeal be necessary. More specifically, the above amendments merely reword previously claimed subject matter for clarity. These amendments are not believed to be necessary for patentability, but rather are provided for clarity. Thus, no further search and/or consideration is necessary by the Examiner. Entry is proper under 37 C.F.R. §1.116.

Applicants respectfully submit that the finality of the Office Action is improper and should be withdrawn. In particular, applicants' previous amendment did not necessitate the new rejection. That is, the present rejection, if proper, should have been originally presented in the previous non-final Office Action as applicants' amendments did not necessitate a new grounds of rejection. Rather, it appears that a new search was performed since the previous arguments overcame the previous rejection. This is not proper basis for the finality of the Office Action. Withdrawal of the finality of the outstanding Office Action is respectfully requested.

The Office Action rejects claims 1-7, 17, 20-21, 24 and 26-30 under 35 U.S.C. §102(e) by U.S. Patent 5,874,862 to Clarke et al. (hereafter Clarke). The Office Action also rejects claims 8-

16, 18-19, 22-23 and 25 under 35 U.S.C. §103(a) over Clarke in view of U.S. Patent 6,049,702 to Tham et al. (hereafter Tham).

Independent claim 1 recites a plurality of gain stages connected in series to amplify a radio frequency (RF) signal having a voltage, wherein each gain stage includes an input port that receives the RF signal and an output port that transmits the resulting amplified signal. Each gain stage increases the voltage of the RF signal. Independent claim 1 also recites a plurality of feedback loops where each feedback loop is coupled to the output port and the input port of a corresponding one of the gain stages and such that each gain stage is connected to a corresponding feedback loop to cancel an undesired offset of its corresponding gain stage.

Clarke discloses a phase-locked loop adapted to change an output of a voltage controlled oscillator (VCO). This may be accomplished by comparing a frequency of a reference oscillator 8 with a signal received at a phase detector 1. A charge pump 7 supplies pulses to an operational amplifier 5a that may vary in width and polarity according to a phase error. See col. 2, lines 62-65. As is clearly described in Clarke, Figure 4 shows operational amplifiers 5a and 5b in series and Figure 6 shows the operational amplifiers 15a and 15b in series. See col. 3, lines 47-49. As is well known to one skilled in the art, an operational amplifier has a non-inverting input (+) and inverting input (-). The output voltage is a difference between the inverting input and the non-inverting input multiplied by an open-loop gain. In Clarke, the inverting input (-) is connected to the charge pump 7 and the non-inverting input (+) is connected to a reference voltage in the charge pump 7. More particularly, the inverting input (-) is controlled by the phase detector 1.

Clarke does not teach or suggest the alleged features of independent claim 1. For example, Clarke does not teach or suggest a plurality of gain stages connected in series to amplify a radio frequency (RF) signal having a voltage, wherein each gain stage includes an input port that receives the RF signal and an output port that transmits the resulting amplified signal, and each stage increases the voltage of the RF signal. In Figure 4 (and Figure 6), one of the inputs of the operational amplifier 5a (or 15a) receives pulses (see the UP and DOWN pulses shown in Figure 5) and the other input terminal receives a reference voltage. An output signal of the respective operational amplifier (such as operational amplifier 5a) is based on a difference between the respective input signals. Therefore, Clarke does not teach or suggest a plurality of gain stages to amplify a radio frequency signal, as Clark utilizes operational amplifiers that operate based on differences between input signals. In other word, the respective stages of Clarke do not amplify a radio frequency signal where each stage includes an input port to receive an RF signal and an output port to transmit the resulting amplified signal. The pulses input to the operational amplifier 5a (or 15a) do not correspond to a radio frequency signal and the output signals of the operational amplifier 5a (or 15a) do not correspond to a resulting amplified signal.

Furthermore, the Office Action states that Clarke discloses a plurality of feedback loops that cancel an undesired offset of the resulting amplified signal as well as each gain stage is connected to corresponding feedback loop that cancels the undesired offset of its corresponding gain stage. The Office Action appears to reference Figure 6 and elements 6, R4, R3 for these features.

Clarke's Figure 4 does not show that each feedback loop is coupled to the output port and the input port of a corresponding one of the gain stages. Figure 6 also does not teach or suggest the claimed plurality of feedback loops such that each gain stage is connected to a corresponding feedback loop to cancel an undesired offset of its corresponding gain stage. That is, in Figure 6, a third pass filter 6 is provided between an output and the inverting input (-) of the operational amplifier 15a. However, operational amplifier 15b does not include a similar type of filter but rather only includes a resistor R4 provided between an input and an output of the operational amplifier 15b. Additionally, resistor R3 is not provided within a feedback loop coupled to the output port and the input port of a corresponding gain stage.

The Office Action appears to reference Clarke's col. 4, lines 2-7. However, this does not relate to canceling an undesired offset of each gain stage. As stated above, Clarke does not amplify signals but rather amplifies differences between signals at the inverting input and the non-inverting input. Clarke does not teach or suggest to cancel an undesired offset of a corresponding gain stage. Clarke's Figure 6 clearly does not even show a capacitor or filter within any feedback loop of the operation amplifier 15b.

For at least the reasons set forth above, independent claim 1 defines patentable subject matter. Each of independent claims 7 and 8 define patentable subject matter for at least similar reasons. Claims 2-6, 17-20 and 26-27 depend from claim 1, claims 21-24 and 28 depend from claim 7 and claims 9-25 and 29-30 depend from claim 8 and therefore define patentable subject matter at least for this reason. In addition, the dependent claims also recite features that further and independently distinguish over the applied references.

In addressing several of the dependent claims, the Office Action makes numerous comments regarding features that are inherently provided within Clarke. Applicants respectfully disagrees with these assertions of inherency. As is expressly stated in M.P.E.P. §2112:

> The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993).
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> "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances in not sufficient.'" *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-41 (Fed. Cir. 1999).

Applicants respectfully submit that the Office Action's assertions regarding inherency are incorrect as the alleged features are not inherently provided. For example, the Office Action asserts (with respect to claim 2) that Clarke inherently includes a direct offset voltage and (with respect to claim 3) that Clarke inherently includes a high pass filter that filters the direct current offset voltage. There is no suggestion that the undesired offset is a direct current offset voltage, and that each feedback loop includes a direct current offset canceling unit for rejecting the direct current offset voltage accumulated by the corresponding gain stage. The Office Action does not reference any particular portion of Clarke for this feature. Additionally, as discussed above, Clarke's Figure 6 only shows a resistor R4 provided within a feedback of the operational amplifier 15b. It is not inherent that this resistor R4 cancels an undesired offset of the operational amplifier 15b. Further, as stated above, the Figure 4 configuration does not correspond to the claimed plurality of feedback loops. Additionally, even if the feedback loops

were provided as claimed, there still is no teaching regarding to cancel a desired DC offset of each stage. Furthermore, with respect to claim 4, as discussed above, Figure 6 clearly does not show a high-pass filter (in a feedback loop of operational amplifier 15b) that filters a direct current offset voltage. Rather, Figure 6 only shows a resistor R4 in a feedback. As such, it is improper to state that Clarke inherently includes a high-pass filter for each stage.

Dependent claim 4 recites that each gain stage includes a variable gain amplifier. However Clarke describes operational amplifiers, which are different than variable gain amplifiers. Variable gain amplifiers are therefore not necessarily present. Thus, Clarke does not inherently include a variable gain amplifier.

Still further, dependent claim 6 recites that the RF signal is an analog radio frequency signal. The Office Action references Clarke's Abstract for these features. However, as is clearly shown in Clarke's figures, Clarke's phase-locked loop may be used to synthesize RF channels and is for use with transceivers such as in WLAN applications. For example, the PLL may be provided in a standard PC expansion card. See Clarke's col. 1, lines 5-15. Merely because Clarke references an RF channel, this does not suggest in any way that the phase-locked loop is based on analog radio frequency signals. Furthermore, independent claim 6 recites that the RF signal is an analog radio frequency signal. There is no suggestion in Clarke of a radio frequency signal being amplified by a plurality of gain stages as recited in base claim 1. These features are therefore not necessarily present in Clarke. Thus, Clarke does not inherently include a radio frequency signal.

Further, dependent claim 26 recites an antenna unit to receive the RF signal. Furthermore, dependent claim 27 recites that the antenna unit provides the RF signal to at least a first one of the gain stages. The Office Action asserts that Clarke inherently includes an antenna unit to provide the RF signal to at least a first one of the gain stages. There is no suggestion in Clarke for these features. It appears that the Office Action merely states that these claimed features are inherently provided within Clarke because Clarke mentions use of a PLL with a transceiver. However, the respective operational amplifiers 5a, 5b, 15a and 15b do not receive an RF signal as alleged in the Office Action. Rather, the operational amplifiers 5a and 15b receive pulse signals from a charge pump 7 (such as the UP and DOWN pulses as is clearly shown in Figure 6). These pulses are not RF signals applied to a first one of the gain stage.

For at least the reasons set forth above, dependent claims 2-6 and 9-30 define patentable subject matter.

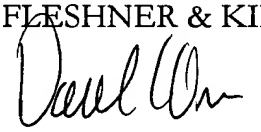
CONCLUSION

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. Favorable consideration and prompt allowance of claims 1-30 are earnestly solicited. If the Examiner believes that any additional changes would place the application in better condition for allowance, the Examiner is invited to contact the undersigned attorney, **David C. Oren**, at the telephone number listed below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. §1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this,

concurrent and future replies, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully submitted,
FLESHNER & KIM, LLP



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